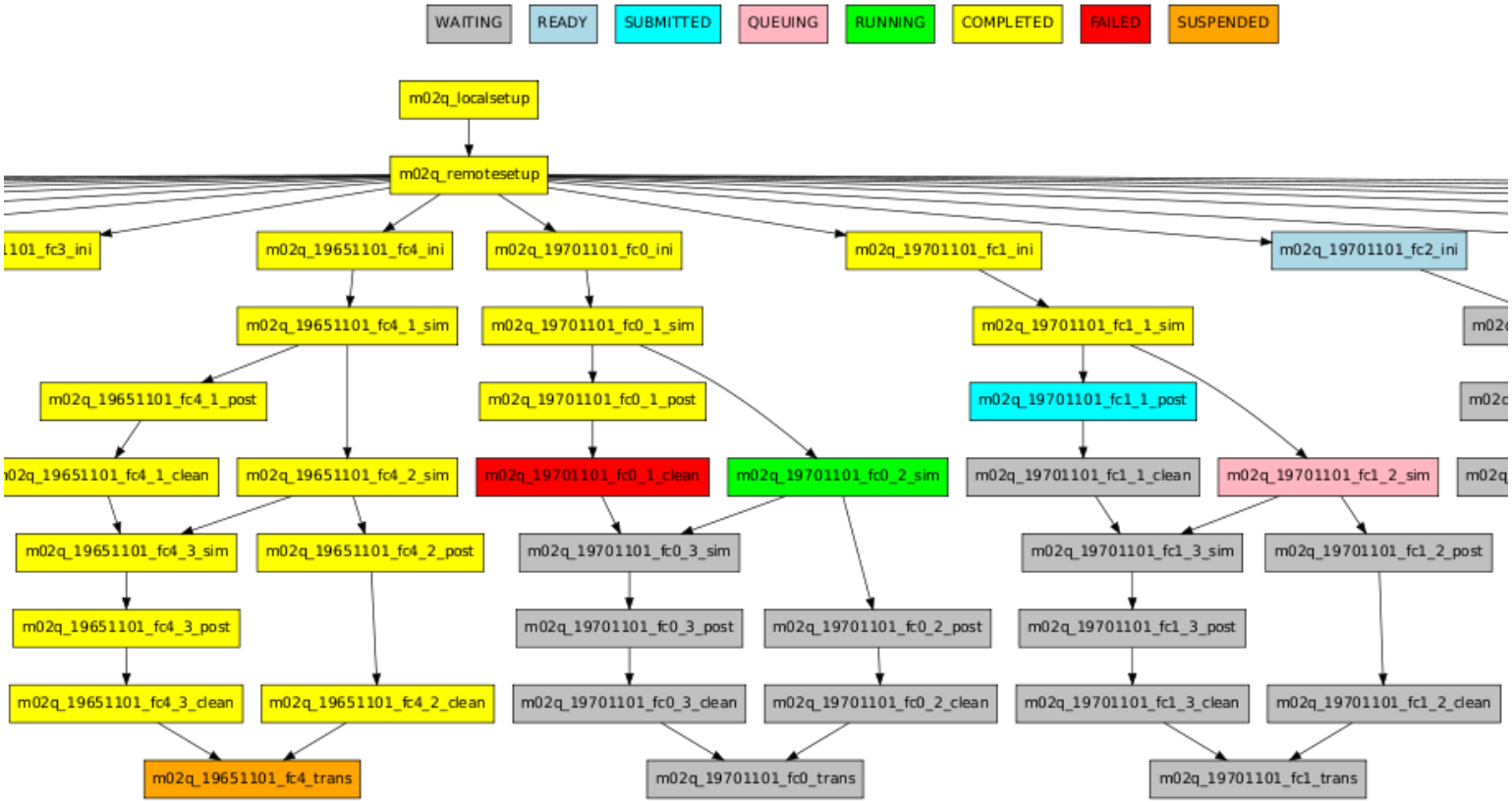
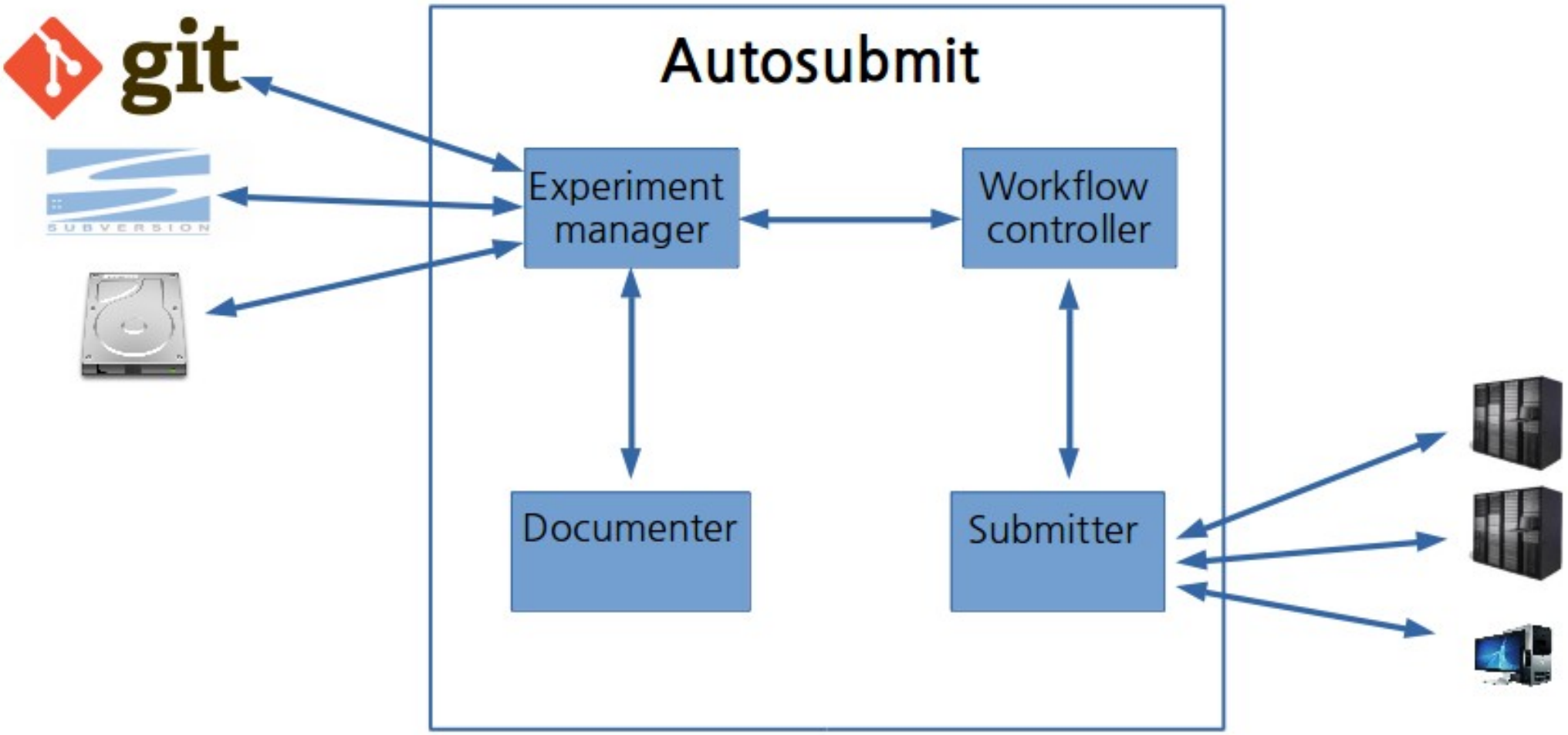
Autosubmit 3.1



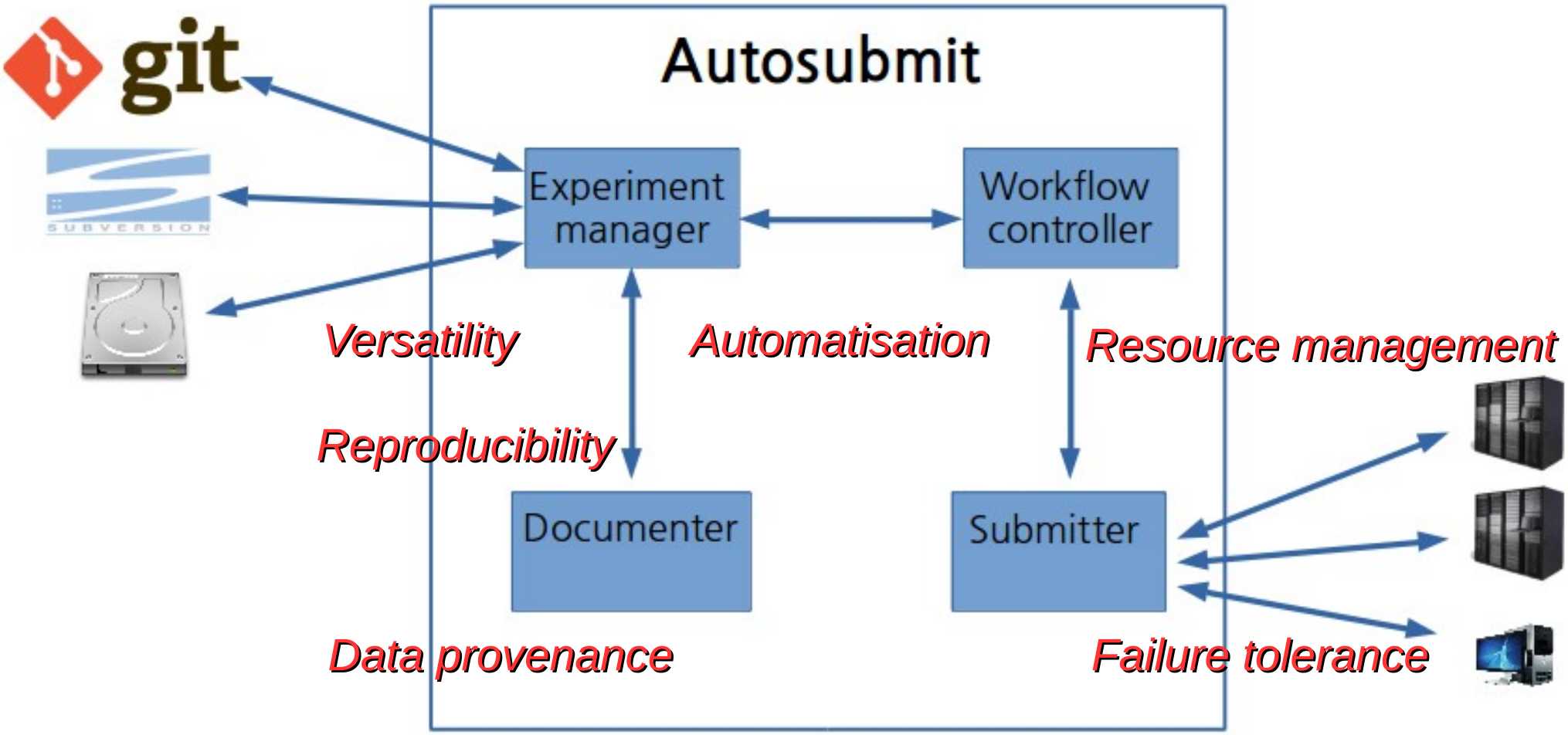
D. Manubens, J. Vegas

O. Mula-Valls, M. Asif, K. Serradell, PA. Bretonnière, V. Guemas, C. Prodhomme, O. Bellprat, F. J. Doblas-Reyes

What is Autosubmit ?



Why is Autosubmit needed ?



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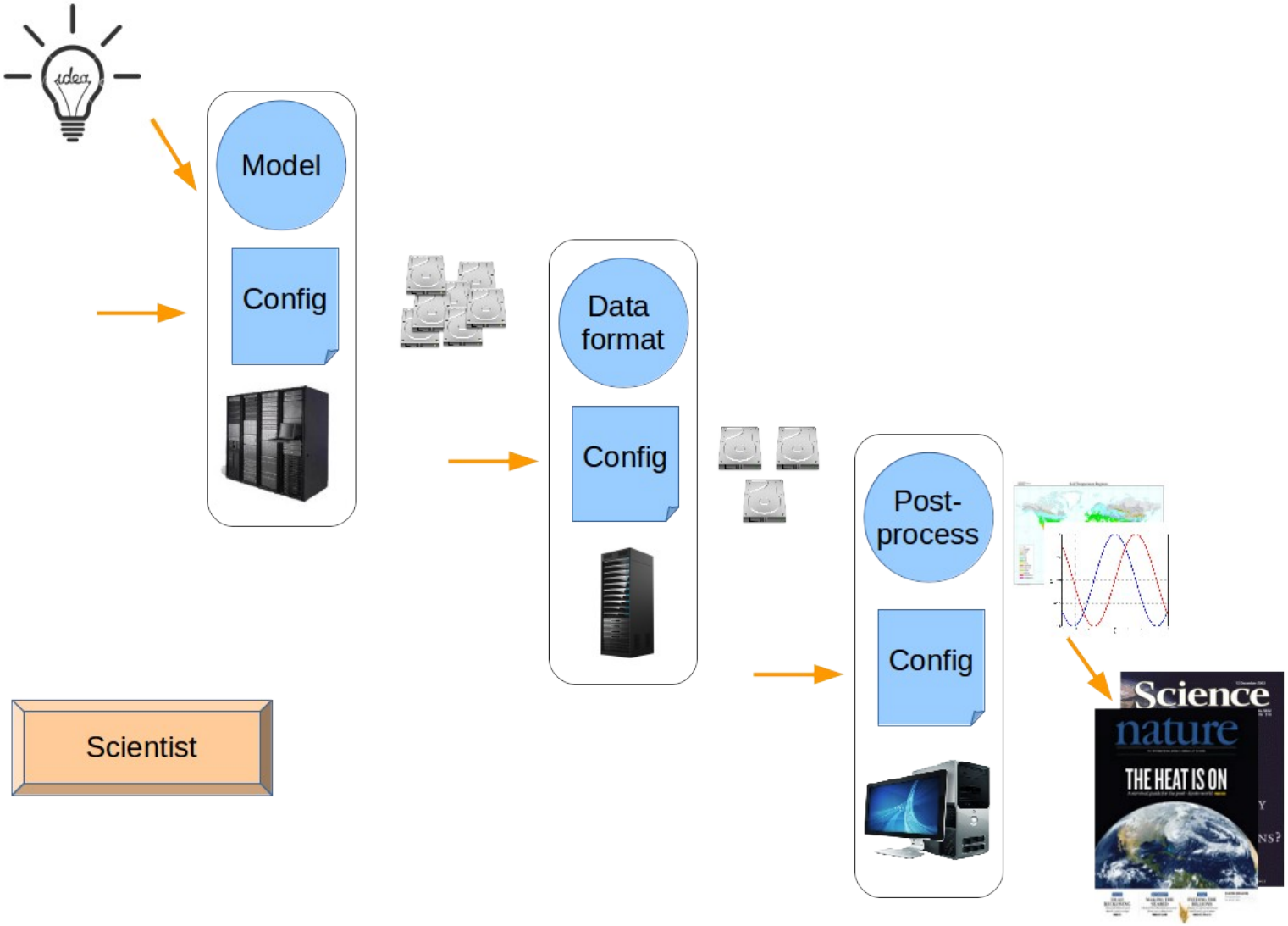

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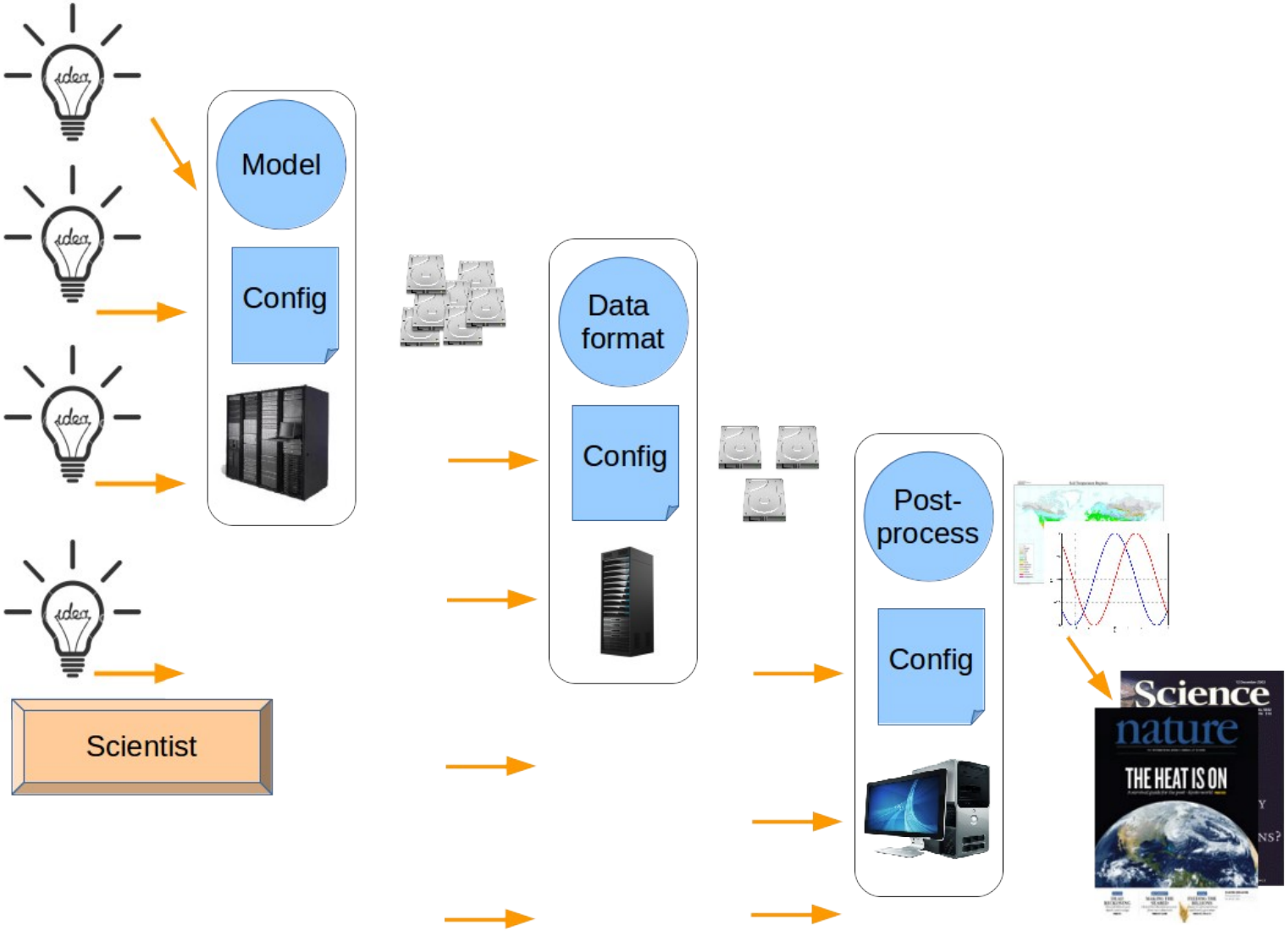

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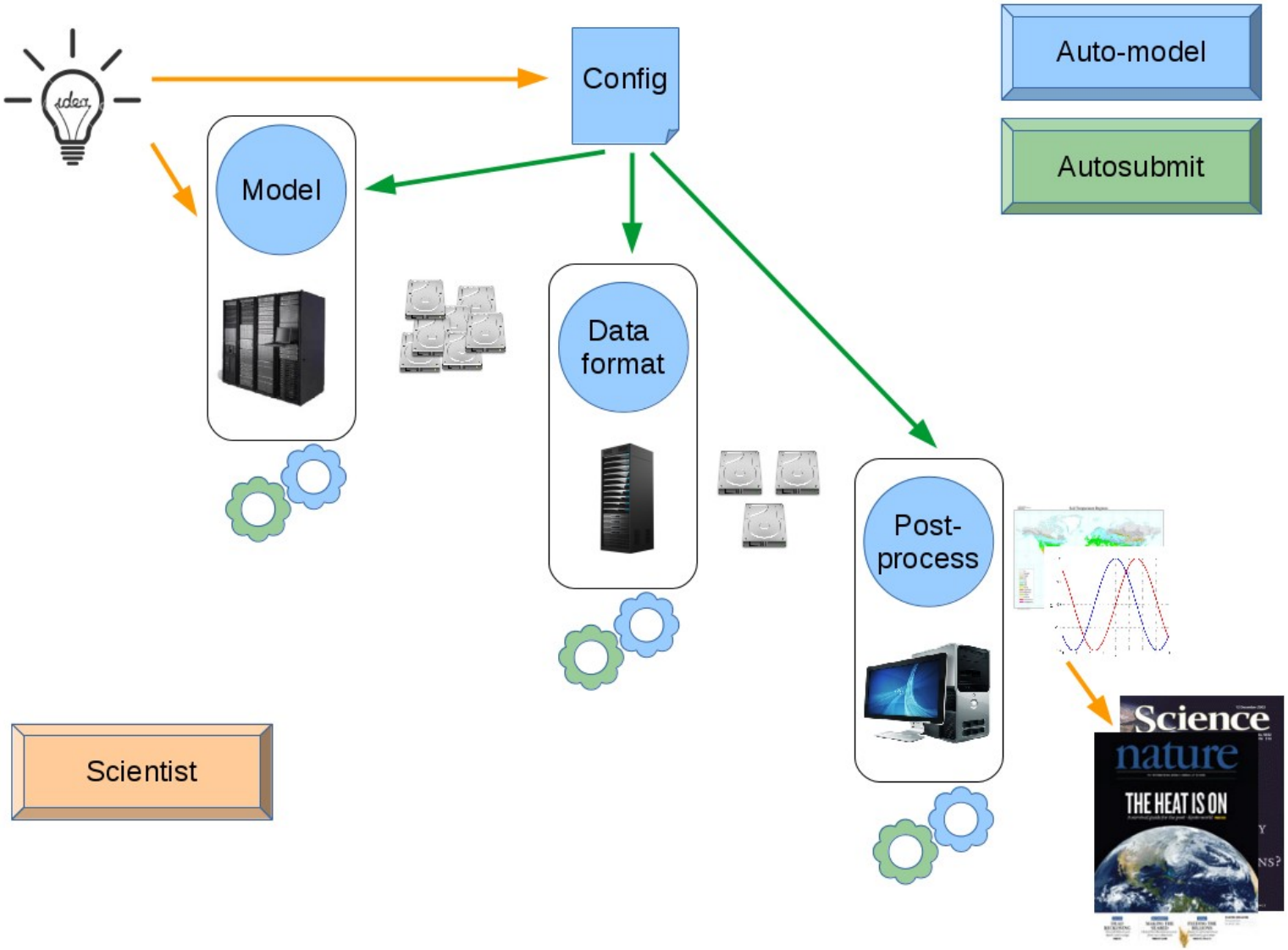
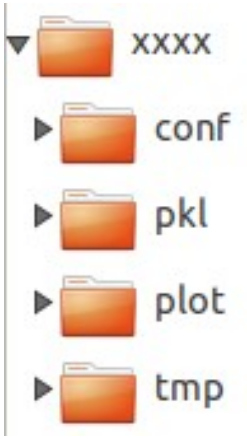


How does Autosubmit work ?

Python Package Index (PyPI)

Experiment creation

```
autosubmit expid –H HPCname
```



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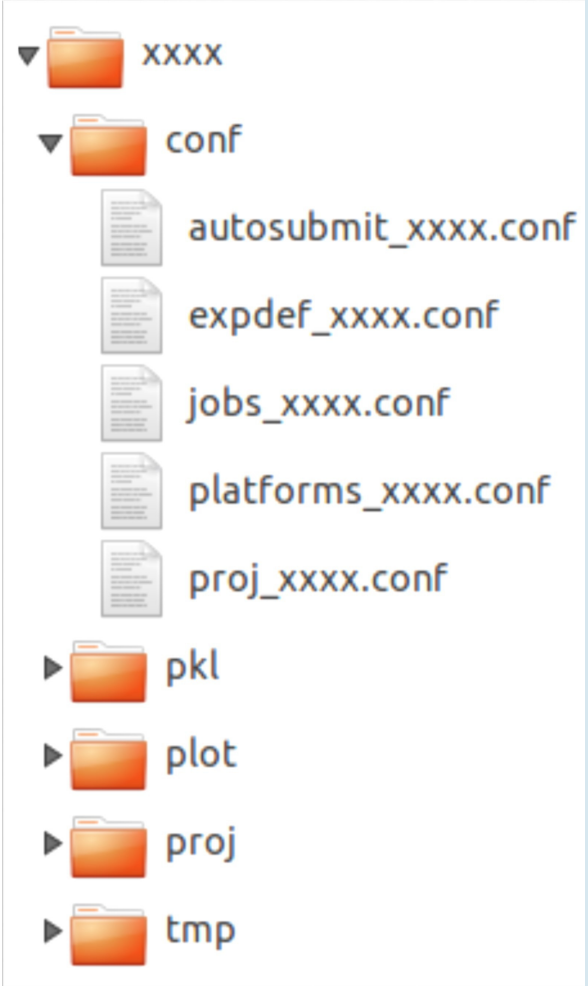

Experiment configuration

```
autosubmit create xxxx
```

Start dates, members and chunks (number and length).

Experiment project source: origin (version control system or path) and project configuration file path.

expdef_xxxx.conf

Workflow to be run: scripts to execute, dependencies between tasks, task requirements (processors, wallclock time...) and platform to use.

jobs_xxxx.conf

HPC, fat-nodes and supporting computers configuration.

Usually provided by technicians, users will only have to change login and accounting options for HPCs.

platforms_xxxx.conf

Project dependant experiment variables that Autosubmit will substitute in the scripts to be run.

proj_xxxx.conf

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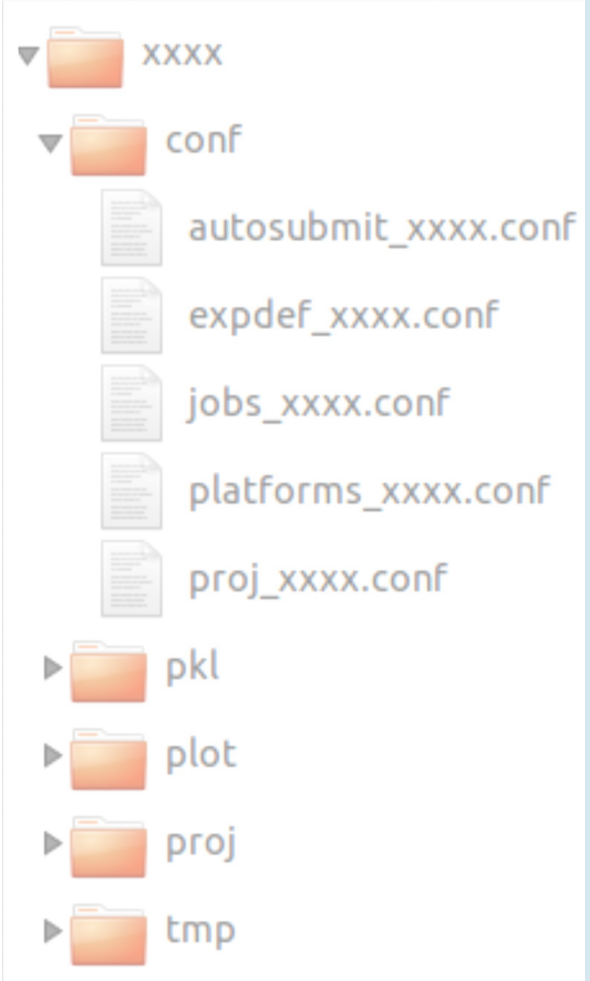

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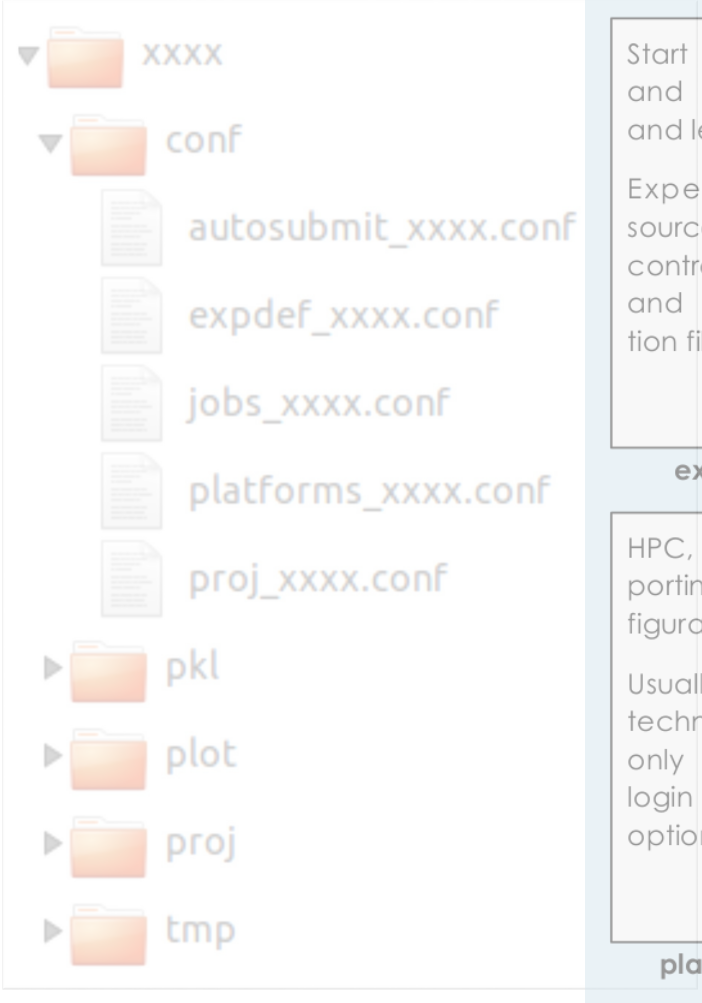
Experiment configuration file

```
[project]
# Select project type. STRING = git, svn, local, none
# If PROJECT_TYPE is set to none, Autosubmit self-contained dummy templates will be used
PROJECT_TYPE = git
# Destination folder name for project. type = STRING, default = leave empty,
PROJECT_DESTINATION = model

# If PROJECT_TYPE is not git, no need to change
[git]
# Repository URL  STRING = 'https://github.com/torvalds/linux.git'
PROJECT_ORIGIN = https://gitlab.cfu.local/cfu/auto-ecearth3.git
# Select branch or tag, STRING, default = 'master',
# help = {'master' (default), 'develop', 'v3.1b', ...}
PROJECT_BRANCH = develop
# type = STRING, default = leave empty, help = if model branch is a TAG leave empty
PROJECT_COMMIT =

# If PROJECT_TYPE is not svn, no need to change
[svn]
# type = STRING, help = 'https://svn.ec-earth.org/ecearth3'
PROJECT_URL =
# Select revision number. NUMERIC = 1778
PROJECT_REVISION =

# If PROJECT_TYPE is not local, no need to change
[local]
# type = STRING, help = /foo/bar/ecearth
PROJECT_PATH =

# If PROJECT_TYPE is none, no need to change
[project_files]
# Where is PROJECT CONFIGURATION file location relative to project root path
FILE_PROJECT_CONF = templates/ecearth3/ecearth3.conf
```

Experiment creation

```
autosubmit expid –H HPCname
```



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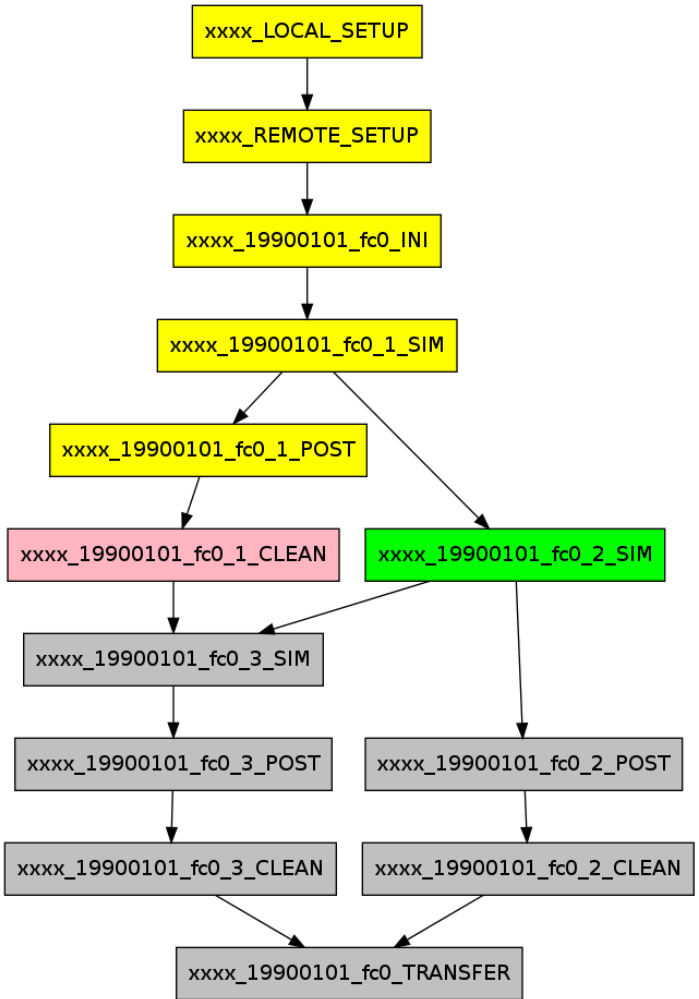
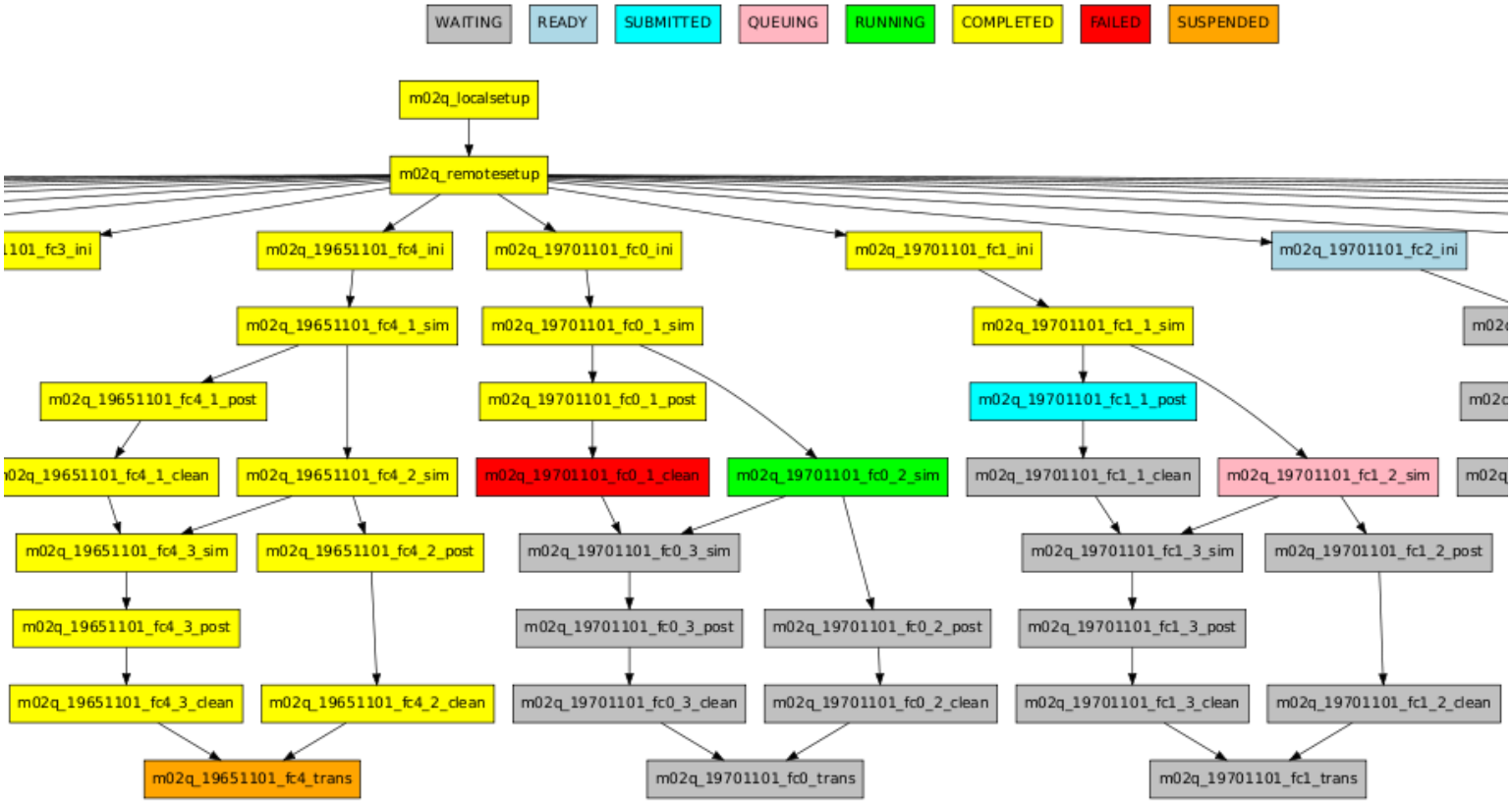
Experiment run

```
autosubmit run xxxx
```



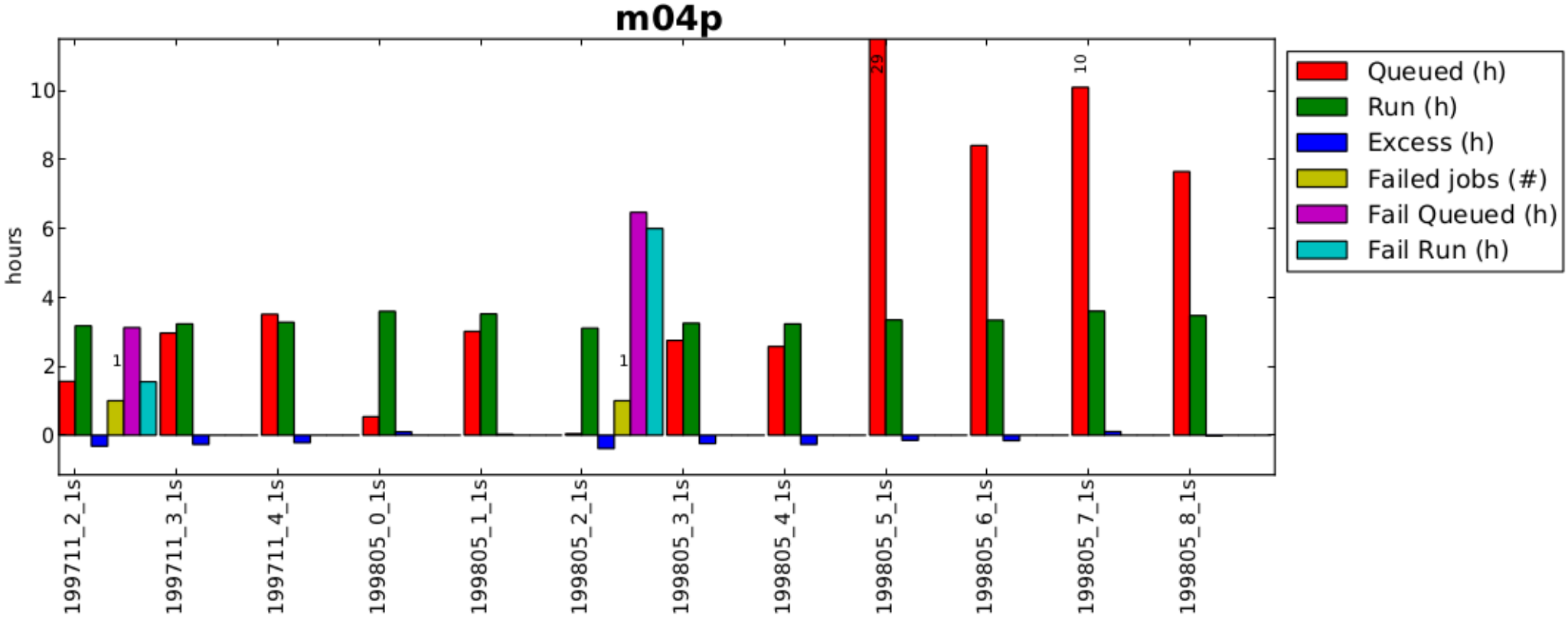
Experiment monitoring

```
autosubmit monitor xxxx
```

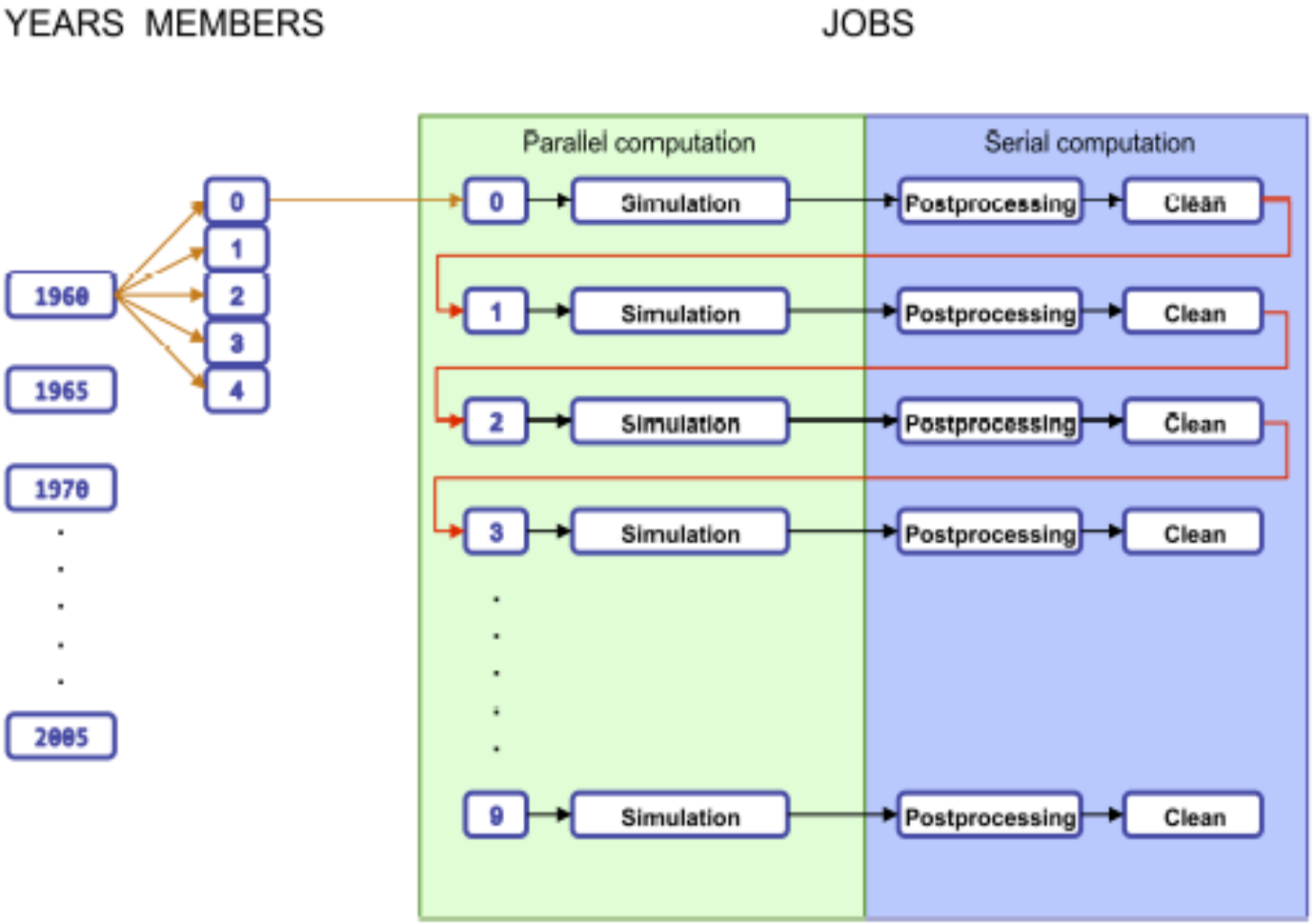


Automatic statistics

```
autosubmit stats cxxx
```

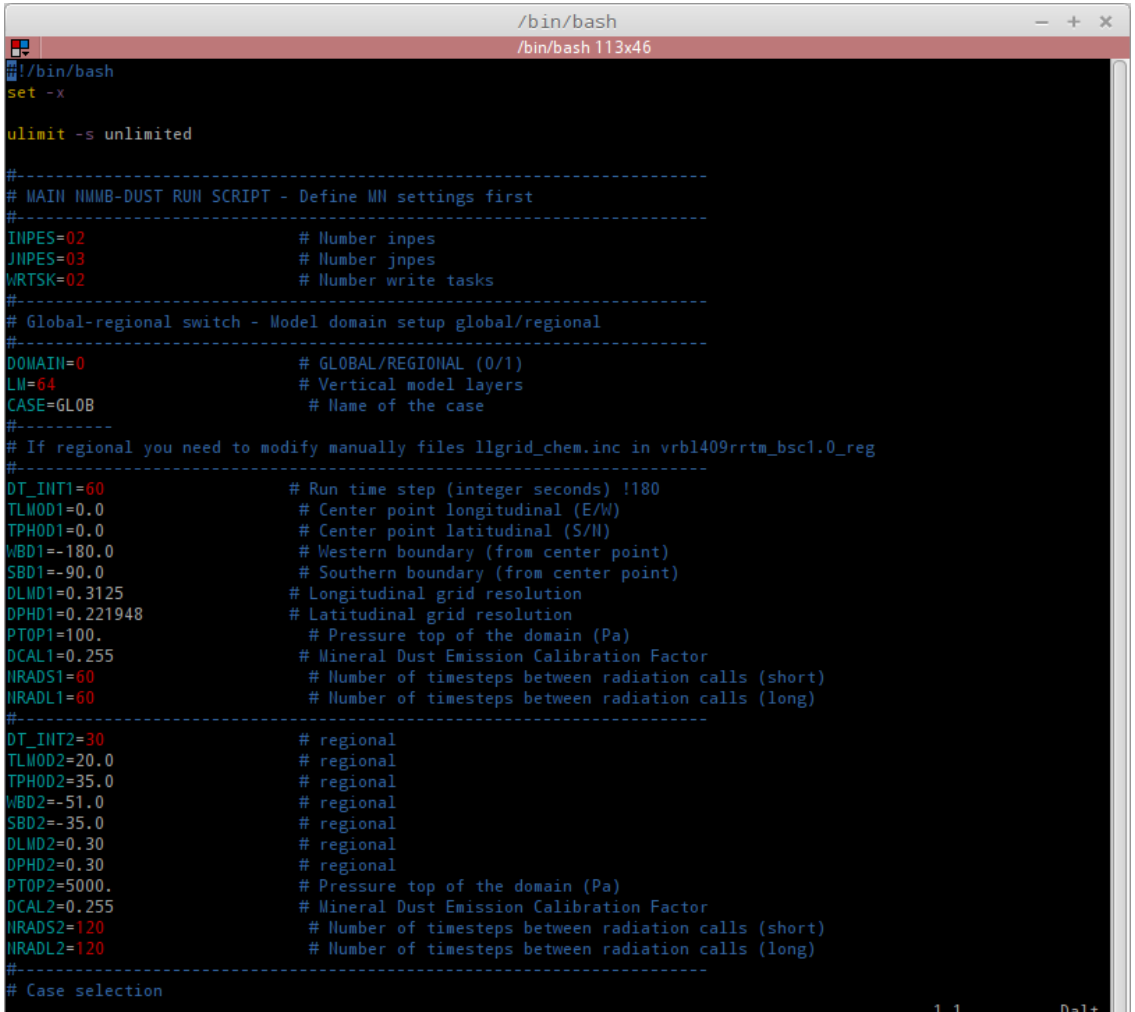


EC-Earth/IC3 workflow



NMMB/BSC workflow

- Currently ~ 1.000 lines of code
- Splited by blocks (fixed, variable, model…)



Splitting tasks

- We divide the script and we create five different scripts
  - FIX
  - VAR
  - SIM
  - POST

- And we define dependences

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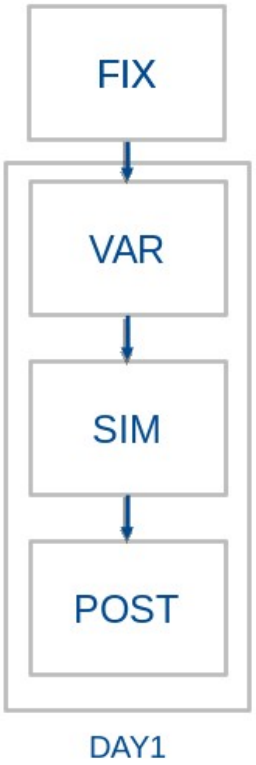

Splitting tasks

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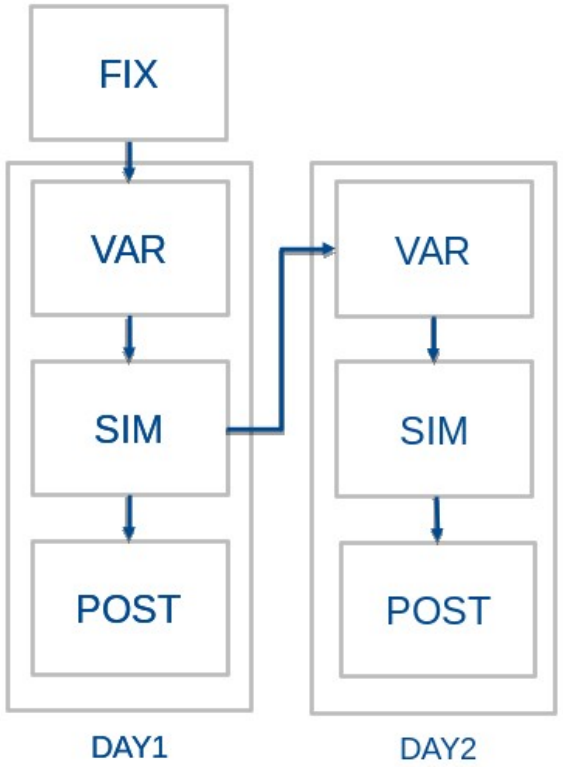


Future Work

- Create a wrapper for jobs that allows to send various independent tasks as one big job to reduce queueing time and to allow participation in tier-0 projects.

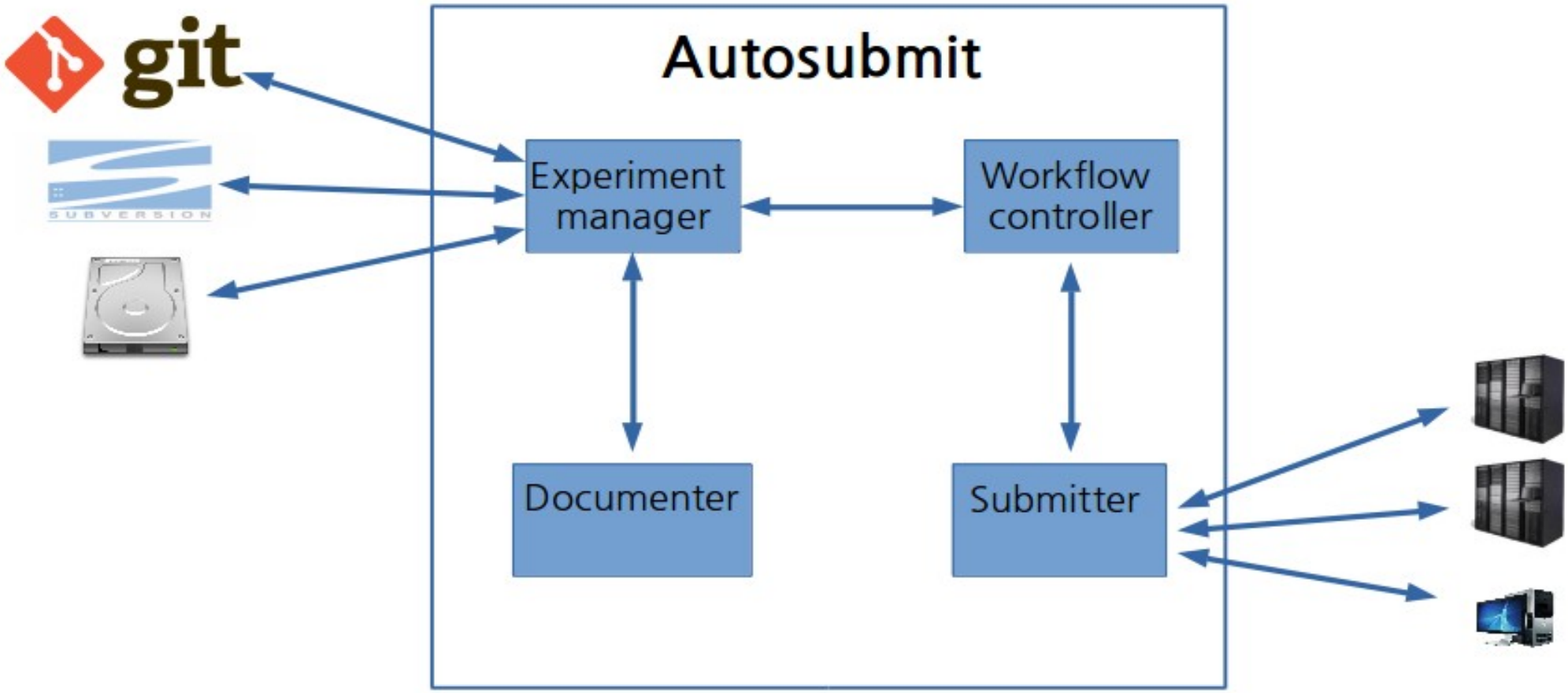
- Implement the SAGA standard for job submission & control.

- Expand data stored in database to store all data needed for CMIP6. Use the es-doc python API.

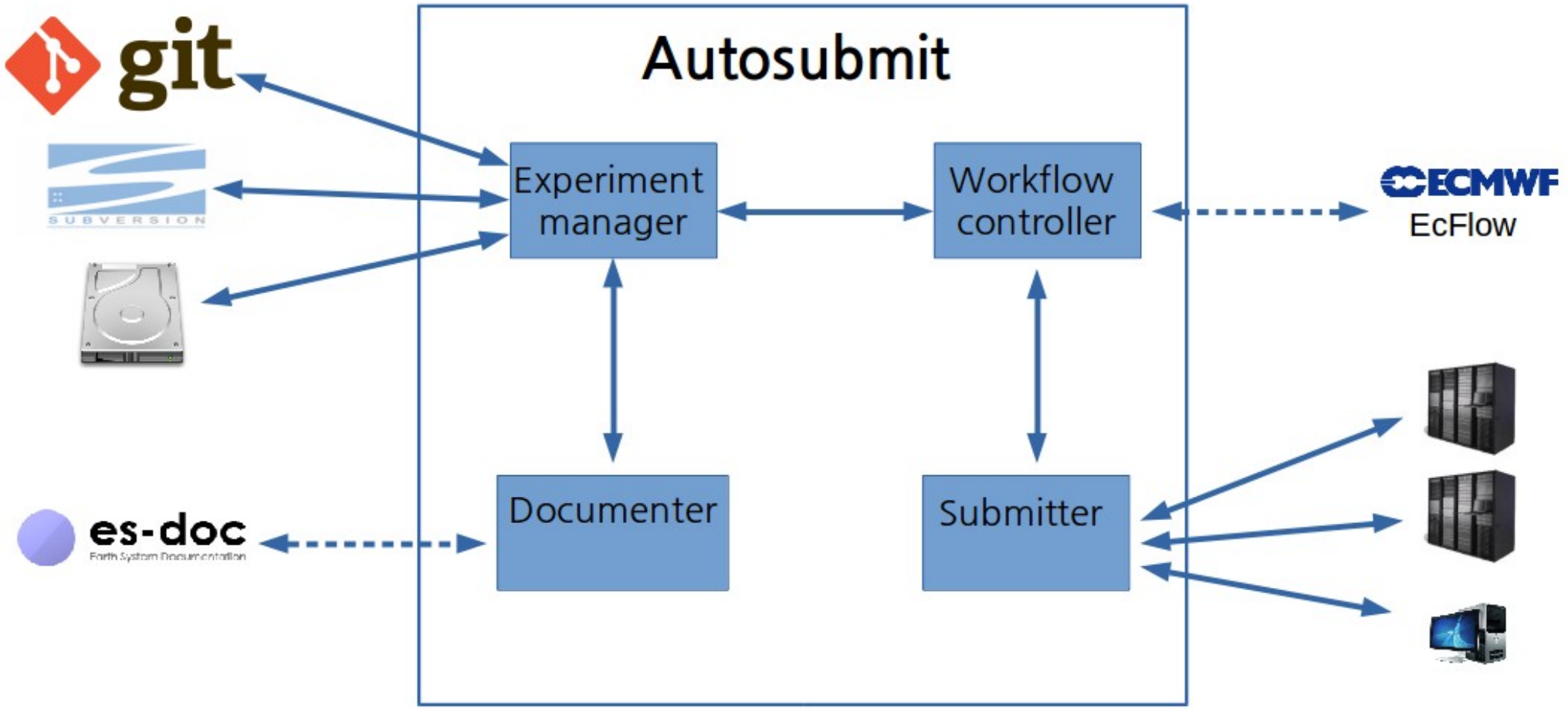
- Build a plugin system for different models databases.

- Evaluate the suitability of using ecFlow (https://software.ecmwf.int/wiki/display/ECFLOW) and Cylc (http://cylc.github.io/cylc) for workflow configuration to converge with community standards.

Future Work


git
SUBVERSION
Autosubmit
Experiment manager
Workflow controller
Documenter
Submitter

Future Work


git
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Experiment manager
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ECMWF
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Documenter
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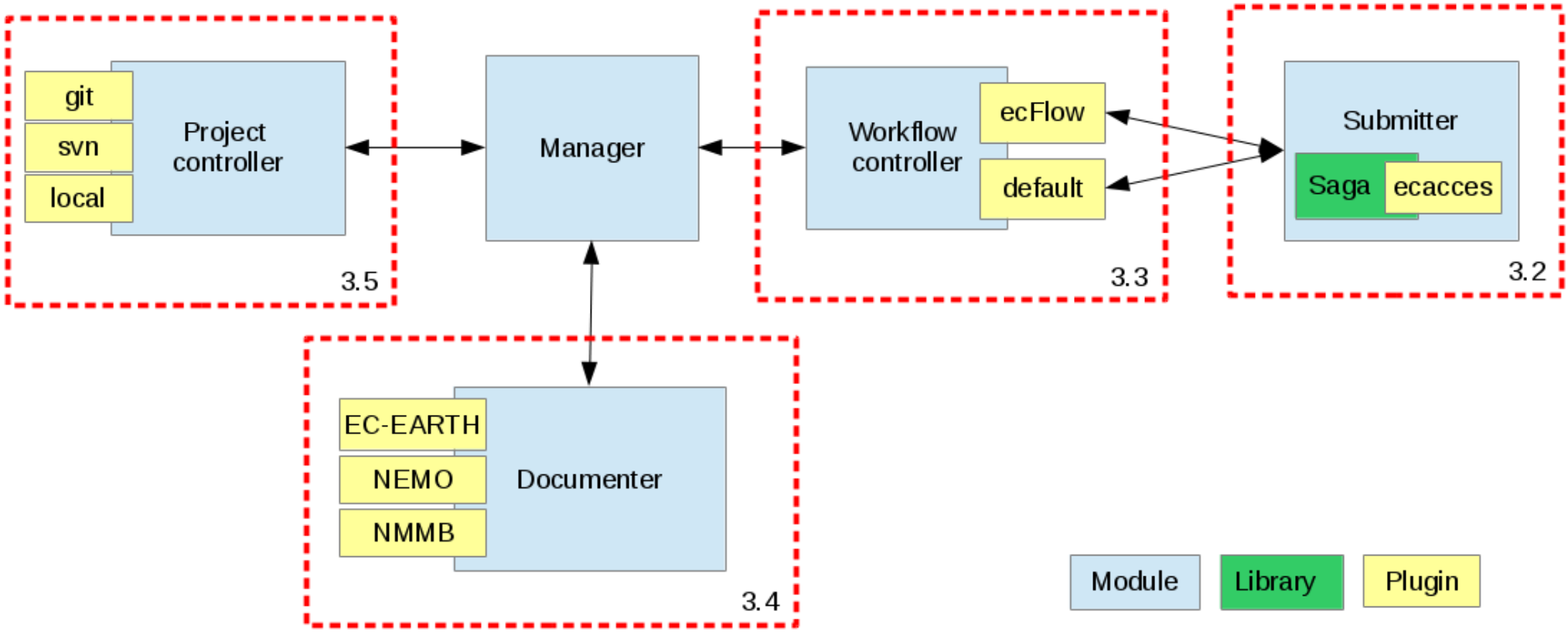
Roadmap


git
svn
local
Project controller
3.5
Manager
Workflow controller
ecFlow
default
3.3
Submitter
Saga
ecacces
3.2
EC-EARTH
NEMO
NMMB
Documenter
3.4
Module
Library
Plugin